DOCUMENT RESUME

ED 379 414 CE 068 040

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TITLE Recent National Studies and Reports on Education and Economic Reform: Some Initial Implications for Curriculum Standards in Vocational Education.
PUB DATE 12 Nov 94
NOTE 21p.
PUB TYPE Information Analyses (070)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Basic Skills; Competence; Competency Based Education; *Curriculum Development; *Educational Change; *Finance Reform; Literature Reviews; National Surveys; *Research Reports; Synthesis; *Vocational Education
IDENTIFIERS *Curriculum Standards; *Secretarys Comm on Achieving Necessary Skills

ABSTRACT

Nine national studies and reports on education and economic reform that were published between 1988 and 1992 were analyzed from the standpoint of their implications for curriculum standards in vocational education. A comparative matrix analysis method was developed and used to compare and contrast the nine studies/reports to the Secretary's Commission on Achieving Necessary Skills (SCANS) report of 1991, which was selected as a benchmark because of its scope of occupational and personal student skills, completeness, and specificity of skill definitions. The preliminary findings of the analysis were as follows: (1) the reviewed national studies cover the SCANS skills (especially basic skills) in substantial detail but give only limited attention to the SCANS workplace competencies; (2) report sponsorship appears to have some effect on the type of skills included in the national reports examined; and (3) the SCANS report does not include career development skills and/or competencies that are included in several of the national reports that were reviewed. The need to find consensus across education and economic reform studies emphasizing workplace skills was stressed. (The bibliography lists 10 references. Appended is a list of foundation skills and workplace competencies identified in the SCANS report.) (MN)

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ED 379 414

RECENT NATIONAL STUDIES AND REPORTS ON EDUCATION AND ECONOMIC REFORM: SOME INITIAL IMPLICATIONS FOR CURRICULUM STANDARDS IN VOCATIONAL EDUCATION

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November 12, 1994

CE 068 040

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ABSTRACT

Since the early 1980's, national educational reform has been an issue in the forefront of public policy. Reform of students' classroom experience and the skills produced therefrom has been critically examined. This examination by educators, business, and governmental agencies has been documented in numerous national reports. Often, these reports identify a multitude of desired student skills or outcomes that are unique to each study. Similarly, recommendations that accompany those reforms are also specific to each report. As a result, numerous skills are identified, varying recommendations are made, and any consistency between reports is often lost. Hence, policy makers and administrators see little commonality in regard to student outcomes on which to develop or build education for work policy or programs. Potentially, this lack of commonality curtails the development of curriculum standards reflective of common skills needed by all students. This study reviews several national education and economic reform reports and identifies consistent elements between them.

The reviewed studies/reports are taken from the period of 1988 to 1992, and their contents are compared and contrasted to the SCANS Report of 1991. This report was chosen as the benchmark because of its scope of occupational and personal student skills, completeness, and specificity of skill definitions.

The study methodology included the development of a matrix to compare and contrast the competency and skill recommendations of the studies. The SCANS foundation skills and competencies were used as a criterion in relation to the content of the selected national studies. The content of the studies was examined to evaluate whether SCANS skills and competencies were included (either through implication or explicit discussion) or excluded. From this review, a set of observations and recommendations were formulated based upon a matrix analysis. The analysis produced some preliminary findings:

1. The reviewed national studies cover the SCANS Skills, particularly the basic skills, in substantial detail. However, these studies/reports give limited attention to discussion to the SCANS Workplace Competencies.

2. Report sponsorship appears to have some affect on the type of skills included in the examined national reports.

3. The SCANS Report does not include career development skills and/or competencies that are included in several of the reviewed national reports.

As the nations' educators seek to implement the new national education goals and the forth coming Industry Skill Standards, the relationship of these standards to curriculum content and alignment must be carefully considered. By finding consensus across education and economic reform studies emphasizing workforce skills, significant contributions can be made to the development of curriculum standard. Such analyses are important to building valid, reliable, and non-redundant curricula for the full spectrum of work-related education programs.

INTRODUCTION

As the educational community readies itself for the 21st century, many of the reform initiatives that will carry it into the new century focus on the training and retraining of America's workforce. The driving force behind these initiatives is the national perspective that students of the 90's are not receiving and/or learning the competencies/skills needed for the global workforce projected for the next century. In response to this issue, education, business, industry, labor, and governmental agencies have all identified certain skills (i.e., outcomes and competencies) to prepare students as successful workforce members. The corollary effect for the nation and the students themselves, is not only educational betterment, but technological advancement and economic survival. As a result of this identification activity and related student skill reforms (e.g., Tech Prep, Competency-Based Education), a plethora of national studies/reports documenting those desired skills and positing structural change (i.e., educational and economic) have been produced.

One such study, *What Work Requires of Schools - A SCANS Report for America 2000* is widely considered as a seminal document in workforce development circles. Because of this distinction, SCANS is used in this inquiry as a criterion instrument against which other reviewed studies are contrasted and compared. The SCANS skills are both educational and personal, with definitions accompanying each. The completeness and definitions of SCANS offers some consistency when comparing terms and skills of various studies to the SCANS study itself.

Within the scope of this report, several educational and economic studies from 1988 to 1992 have been documented into one concise matrix. These studies are analyzed in relation to the SCANS Report. The purpose of this matrix and its subsequent analysis are two-fold:

1. The matrix allows educators, business, industry, and governmental leaders to examine the commonalities, differences, and scope of specific skill studies in one document. The reviewed studies are national in origin, and include identified educational and personal skills.

2. Through the matrix, an analysis can be completed to establish a baseline of general skills which then could be used as a foundation for national vocational education curriculum standards. Currently, vocational education does not have widely adapted national standards for curriculum and instructional materials. A common core of general skills would serve as a foundation to future curriculum and/or enhancing existing curriculum in the areas of content and pedagogy.

With a common core framework in place, vocational education/education for work policy can concentrate on identifying an essential set of skills which provides a common thread to any developed curriculum. In turn, education for work curriculum is systemically enhanced by the reinforcement and connection of relevant student learning within and across programs, grade levels, and schools.

PURPOSE OF THE STUDY

The purpose of the study is to enrich the existing knowledge pertaining to national education and economic reform studies focusing on education for work skills. This enrichment will emerge from a synthesis that compares and contrasts the skill content of the identified studies. The primary objective of this inquiry is to complete an analysis of the reported skills, from which possible implementation issues can be discussed in relation to the design of education for work curriculum standards. In light of the current milieu of education and economic reform studies whose content are founded on the identification of "desired" education for work skills deemed "essential" for successful entry level workers, examination should be pursued that codifies these varying perspectives for sustainable and consistent national policy. In particular, this initiative could be beneficial to policy development influencing the evolution of education for work curriculum standards.

Statement of the Problem

An abundance of national education and economic reform studies have directed their conceptual focus toward positing various workforce skills believed to be vital for worker training/education. Building on this notion, many of these studies suggest that as students must experience the identified skills through their own education, once employed, as workers, they can more directly and positively participate in the economy. With these many studies, however, relatively little attention has been given to examining the identified skills in relation to the formulation of education for work curriculum standards. Without a generally consistent notion of what actually constitutes essential education for work skills that are applicable to all students, how does quality curricula emerge that reflects those skills? In the absence of that curriculum (and the curriculum standards that guide its development), the national education goals and various education for work skills currently be posited by federal policy have limited basis for truly affecting student learning. With national policy envisioning education for work skills, curriculum standards can more effectively address a positive interface between the skills and curriculum design, content, pedagogy, and student learning. Envisioning this successful interface and connection is critical for the ultimate beneficiaries of education for work programs: the learners who will live and work in a highly complex, interdependent, global society.

METHOD

Selection Criteria

There were several criteria employed in the selection of education and economic reform studies used for the purpose of this inquiry. First, only recently published studies were chosen for analysis. Several studies published between 1988 to 1992 were examined. Second, the studies selected were national in scope with an emphasis on affecting national education /training policy. Another imposed constraint on study selection was the study/report be authored by some nationally recognized agency, panel or commission. Last, the studies selected focused on skills identified as key to the education of persons contributing to a productive work force. Studies calling for educational reforms which were not based on skills or competencies associated with work or economic activity were excluded from the analysis.

Data Analysis

Content Analysis

The research methodology employed for this inquiry was a content analysis. Specifically, a comparative matrix analysis was utilized for comparing and contrasting the skills content of the selected studies. According to Berelson (1952, p.18) the "content-analysis technique may be any form of communication, usually [performed on] written materials...". With such an analysis, data currently exists and need not be generated; although new knowledge will be produced through some type of examination or contrastment (Borg and Gall, 1989). The studies selected for this inquiry provide the contextual evidence for the content analysis.

The analysis was accomplished by developing a matrix detailing the identified skills of each of the selected education and economic reform studies. With the SCANS Report serving as a baseline criterion, skills and competencies recommended in the selected studies where subjectively coded as "explicit" or "implied" in the SCANS taxonomy of foundational skills and competencies. The author was the coder in this process. While the use of a single coder probably enhances the internal reliability of the analysis, it also creates a number of problems that, in turn, limit the validity and generalizability of the recommendations at this juncture. Future work on this study will involve having multiple raters using a

tighter definition for "implied" designations. However, for the purpose of this inquiry, the definitions of "explicit" and "implied" are the following:

Explicit: Skills of the examined education and economic reform studies are phased in the same wording as the skills/competencies of the SCANS Report.

Implied: Skills of the examined studies are similar to, or parallel to those documented in the SCANS.

For replicablity, it is apparent that different definitions for these two terms can certainly have an impact on how the data coding takes place. Similarly, if others chose to use the stated terms, the possibility exists that the same interpretation may not occur, hence, the matrix may take on a different caricature. In order for a similar replication of the data analysis to take place, it is imperative for these two definitions to be very clear. Even then, coder subjectivity may enter into the analysis. For a partial solution, two or more coders can be utilized to cross-analyze the data in regard to skill comparison.

Further, the inclusion of recently published studies (including some of the industry skill standards which are now being released) will provide a broader basis for affirming an emerging national consensus about critical workforce skills and knowledge.

Data Reliability

The "Skills Matrix" is included to facilitate the identification the type of skills and competencies distinguished by various national workforce studies. Using this tool, one can then reflect upon a number of considerations. First, the methodological approach of using the SCANS as a baseline criterion study allows for the contrast and review of the skill related content of eight national workforce reports/studies to the SCANS Report. SCANS was selected for this purpose for the following reasons: 1) the report was generated by a well recognized sponsor (U.S. Department of Labor) and thus, appears to have good face validity; 2) SCANS produced an extensive follow-up study by a broad-based commission of employers; 3) within the report itself, some empirical analyses of jobs and industries were conducted to validate the skills and competencies; and 4) the report also contains a well defined set of terms which adds clarity to the work.

Second, by contrasting these skills, a simple analysis can document how these workforce reports/studies relate, incorporate and/or differ in their portrayal of desired skills and competencies. From this analysis, a set of generalized skills could be posited as a foundation for the of development of nationally focused vocational education curriculum standards. According to Hagens and Crohn (1986, p. 7) standards of this magnitude need to be based on "detailed, skills-oriented, common learnings curriculum". The process of selecting these skills could be designed to include those that are consistently documented across the matrix (e.g., Basic Skills), and perhaps consider skills that are consistently omitted as well (e.g., Career Development). Additionally, a national may emerge to build common definitions and standards of performance for skills and competencies. If meaningful dialogue is to occur among policy makers, curriculum developers, and teachers which focus clearly on core skills, and in tandem, appropriate advanced technical skills are to be specified for the full range of American industries, then some degree of consistency when identifying and defining skills may be essential for this dialog to produce significant results.

Last, the matrix categorizes the eight national studies by publication date, sponsoring agency, and type of skills desired. In reviewing the national database and literature for this study, it was apparent, that limited effort had been made to categorize in some format the array of workforce related studies which potentially impact education for work initiatives.

Limitations

There are several limitations to this study. As mentioned previously in the analysis section, coder subjectivity is a potential limitation. Further work is anticipated with this study, in which a modified-delphi panel approach will be utilized to provide analysis and coding to the selected studies. Second, some of the included studies (i.e., *America's Choice*, *America 2000*, and *National Education Goals of 1991*) appear to provide policy rational for structural changes, rather than specific skills/competencies per sae. Although these education and economic policy studies imply the importance of the "basic skills", their primary concentration seemingly focuses on the greater policy picture. Finally, a number of the selected studies from this review did include various skills/competencies that were not revealed in the SCANS Report. Thus as the benchmark study, the SCANS Report also appears to have some degree of weakness.

LITERATURE REVIEW

The reviewed literature contained in this study were gathered through the ERIC database of educational resources. The resulting collection of studies and reports were published between 1988 and 1992. In choosing this particular time period it was hoped that the most timely, and hence, the most relevant material would be reviewed and analyzed. The studies and reports contained herein (Table 1, p. 6) are national in scope, with authors representing the private sector, education, government, business, industry, and labor.

TITLE	SPONSOR(S)	PERSPECTIVE REPRESENTED	FOCUS
1. America and the New Economy (1991)	American Society for Training and Development; US Dept. of Labor	Business	Five characteristics of the new economy (market standards, technology, economic lifecycle, organization and management, and jobs).
2. Workplace Basics: The Skills Employers Want (1988)	American Society for Training and Development; US Dept. of Labor	Business	Seven skill groups needed for persons to successfully enter the workforce (organizational effectiveness, self-esteem, creative thinking, listening and oral communication, 3 Rs, and listening).
3. What Work Requires of Schools--A SCANS Report for America 2000 (1991)	The Secretary's Commission on Achieving Necessary Skills	Business	Strategies to achieve necessary workforce skills (skill definition, proficiency levels, proficiency assessment, skill dissemination).
4. Measuring Progress Toward the National Education Goals: Potential Indicators and Measurement Strategies (1991)	National Education Goals Panel	Education	An objective of Goal 5 states that the workforce receive training on new skills and knowledge through a variety of opportunities.
5. America 2000 (1991)	U.S. Department of Education; Office of the President	Education	A question and answer publication on the implementation options through a variety of opportunities.
6. America's Choice: High Skills or Low Wages! (1990)	National Center on Education and the Economy	Business	Offers a system of national standards and assessments.
7. Building a Quality Workforce (1988)	U.S. Depts. of Labor, Education, and Commerce	Business and Education	Strategies for education and business to consider in order to build a quality workforce.
8. Workforce 2000 - Work and Workers for the 21st Century (1988)	U.S. Dept. of Labor	Business	Four work-related trends are identified (economic growth, decrease of US manufacturing, diverse workforce, and higher-level skill requirements.
9. Education Counts: An Indicator System to Monitor the Nation's Educational Health (1991)	National Center for Educational Statistics	Business	Identifies six indicators to improve educational data collection. Two indicators, learner outcomes and educational and economic productivity, relate to educational training for the future workforce.

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A collective monograph, *America and the New Economy* (Carnevale, 1991), defines and discusses the "new economy" from the perspective of U.S. employers and employees. In general, the report focuses on the influence of changing competitive standards and the resulting transformation of the workplace. In order for this transformation to occur, the report offers an alternative purpose of "scope of action" that must be embraced (from the perspective of its author). In this action, five characteristics of the "new economy" are presented: 1) market standards; 2) technology; 3) a new economic life cycle; 4) organization and management; and 5), jobs. These five characteristics center on changing skill dimensions that involve: departing from concrete to abstract skills; moving from specific to general skills; integrating self-management and interpersonal skills; and converging skills as work roles tend to become increasingly blended. Within each instance, the report documents specific skills required of workers in the new economy. Associated with each skill, the report presents the importance of the skill, supporting curriculum applications, and lastly, what constitutes worker/employee competency of that skill. The skills that are detailed include:

The Academic Basics:	Reading, Writing at Work, and Computation.
Learning to Learn:	Knowing How to Learn.
Communication:	Speaking Skills and Listening Skills.
Adaptability:	Problem Solving Skills and Creativity Skills.
Developmental Skills:	Self-Esteem, Motivation and Goal Setting, and Personal and Career Development.
Group Effectiveness:	Interpersonal Skills, Negotiation, and Teamwork Skills.
Influencing Skills:	Organizational Effectiveness and Leadership.

This national study appears to document a compliment of skills in a holistic approach. It seems to consider persons both in cognitive and affective domains with its discussions of desired workforce characteristics and knowledge.

Another specific skill study, *Workplace Basics: The Skills Employers Want* (Carnevale, Gainer and Meltzer, 1988) is a United States Department of Labor and American Society for Training and Development sponsored report that identifies and reviews seven specific skill groups needed for persons to successfully enter and contribute to the workforce of the next century. The skill groups of this study include: organizational effectiveness/leadership; interpersonal/negotiation/teamwork; self-esteem/goal setting/ personal and career development; creative thinking/problem solving; listening and oral communication; the 3 R's (reading, writing and computation); and, learning to learn. Having the same principle author and sponsoring agencies involved in its development, this report's identified skills are quite closely aligned to the previously mentioned study. Hence, the presentation of desired skills and characteristics of the future worker are again parallel to the above study. The report concludes with a discussion of methods in which employers can provide experiences/training opportunities for employees to develop those necessary skills.

A national skills document that is considered seminal in workforce training circles is the SCANS Report, or more formally referred to as *What Work Requires of Schools - A SCANS Report for America 2000* (U.S. Department of Labor, 1991). The Secretary's Commission on Achieving Necessary Skills (SCANS) authored and subsequently advised the Secretary of Labor on the level of skills required to enter the workforce. In this study, the Commission examined: the definition of skills needed for employment; proposed acceptable levels of proficiency; suggested effective ways to assess proficiency; and develop a dissemination strategy for the nation's schools, businesses and communities. As a result, five workforce related competency areas and three foundational skill areas were identified and promoted by the Commission as needed for successful entry into employment. Competency areas included were: resources; interpersonal; information; systems; and technology. The foundational skills identified were: basic skills; thinking skills; and personal qualities. SCANS is similar to the two previous studies in so

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much that the identification of specific skills desired by business, industry and labor are specifically documented and emphasis is given to two of the three domains of a holistic worker (i.e., cognitive and affective).

A companion piece to the National Education Goals of 1990 is the compendium, *Measuring Progress Toward the National Educational Goals: Potential Indicators and Measurement Strategies* (National Education Goals Panel, 1991). This report collaboratively developed by educators, business, and technical experts, identified indicators that would best facilitate schools and communities to meet the National Education Goals set forth by President Bush in 1990. Of the six goals, Goal Five - Adult Literacy and Lifelong Learning relates primarily to required skills necessary to compete in a global economy. More specifically, the goals' second objective details the following:

> "...workers will have the opportunity to acquire the knowledge and skills, from basic to highly technical, needed to adapt to emerging new technologies, work methods, and markets through public and private educational vocational, workplaces, or other programs".

As a result, the resource group for Goal Five designed an assessment strategy that would indicate measurement of adult literacy and lifelong learning. The strategy would include collecting data on the degree that literacy skills are possessed by, and required of, persons entering and established in the workforce.

A second publication associated with the National Education Goals of 1990, is *America 2000* (U.S. Department of Education, 1991). A publication co-authored by the U.S. Department of Education and the Office of the President, *America 2000* offers a question and answer format that provides citizens, communities and schools various options in meeting the National Education Goals. The scope of the document covers school accountability, new designs for schools, student learning, and community involvement with educational initiatives.

The codification of eight national education goals is presented in the recent legislation *Goals 2000: Educate America Act* (1994). Coordinated with the *School-to-Work Opportunities Act* (1994), Goals 2000 is noted as the "first step toward making the federal government a supportive partner in state and local systemic reforms at helping all children reach higher standards" (Fact Sheet, p. 3). Specifically, the purpose of Goals 2000 is to enrich the components and processes associated with school readiness, school completion, student academic achievement, leadership in math and science, adult literacy, safe and drug-free schools, parental participation, and professional development. With the School-to-Work Opportunities Act, Goals 2000 will contribute to "supporting state and local efforts to build a school-to-work transition system that will help youth acquire the knowledge, skills, abilities and labor market information" (Fact Sheet, p. 3) required to successfully move from school to career-oriented employment.

Workforce Policy Related Studies and Reports

As an extensive position report, *America's Choice: High Skills or Low Wages!* (National Center on Education and the Economy, 1990) projects the observation that the U.S. will no longer be able to experience economic growth based on an expanding workforce - a situation that has been the status quo in the past. The piece frames its recommendations and criticisms on productivity observations. The authors believe that productivity is already faltering, and that it will continue to do so if there is not a qualitative shift in the paradigms of our workforce. As such, the report offers a system of national standards and assessment that would ensure every student transitioning from school to the workforce would have an demonstrated ability to perform the traditional basic skills, experience occupation-specific skills, skills focusing on values, beliefs and attitudes. Lastly, the groups posits the importance for workers to have the continued opportunity to develop skills.

Building A Quality Workforce (U.S. Depts. Of Labor, Education, and Commerce, 1988) is a report highlighting approaches the country s education and business sectors must consider in order to build a quality workforce that will support the future U.S. economy. The first section of this two-part publication

discusses entry level work skills required by business of future workforce participants. This section outlines existing and projected work skill "gaps", and then explores how education is responding to the challenge of workforce training to hopefully eliminate those disparities. Part two of the report contains descriptive profiles of various U.S. communities in which business, government, and education have collaborated efforts to minimize the transitional chasm existing between education and work.

Also in 1988, the Department of Labor published *Workforce 2000 - Work and Workers for the 21st Century*. This report identifies four key work-related trends that are shaping or will shape the economy and the workforce of the 21st century. Those trends are: the growth of the economy in general; the decreasing manufacturing component of the U.S. economy; a slower growing, yet very diverse workforce; and that new jobs will require higher skill levels. As a result of identifying these trends, the report discusses and reviews related workforce policy issues in light of their implementation and subsequent effect on: stimulating a balanced economic growth; accelerating productivity of the service industry; maintaining the "dynamism" of an aging workforce; reconciling the conflicting needs of the workforce; integrating minorities into the workforce and economy; and improving the educational preparation of all workers.

Education Counts - An Indicator System to Monitor the Nation's Educational Health (National Center for Educational Statistics, 1991) was the final report reviewed for this literature review. "Education Counts" as its commonly referred, reflects the efforts of a nationally formed, special panel that met to identify improvement strategies related to the federal educational data collection system. The panel subsequently identified six indicator areas and made recommendations that would improve national data collection associated with each. Those indicator areas identified were: 1) Learner Outcomes; 2) The Quality of Educational Institutions; 3) Student Readiness for School; 4) Societal Support for Learning; 5) Educational and Economic Productivity; and 6) Equity. Within two areas, Learner Outcomes, and Educational and Economic Productivity, the report makes specific recommendations for the development of indicator activities (e.g., various assessments and national data collection reports). Learner Outcomes are suggested to include: core content (i.e., facts and knowledge in traditional subject matter); integrative reasoning (i.e., workplace competence, interpersonal skills, communication, technology, and systems); and attitudes and dispositions. Potential Educational and Economic Productivity indicators cited were: work-relevant competencies; economic consequences of education and training (i.e., employment status and wage differentials); and workplace support for education and skill development (i.e., workplace sponsored education and training, and policies supportive of education and skill development).

FINDINGS AND RECOMMENDATIONS

Table 2 presents the matrix analysis and the findings from the study. The findings of this research are focused specifically on the SCANS Skills and Competencies (Appendix A). While each of the examined national reports have somewhat similar purposes, they all seemingly posit various skills. The skills are identified/validated through various methodologies. In general, the national workforce studies concentrate their skills identification on the "traditional" basic skills. More specifically, the following discussion highlights the uniqueness of the skills reported by the eight national studies in relation to the SCANS content.

Table 2

Study/report: SCANS: Foundational Skills	Workplace Basics (ASTD & USDL) 1988	Workforce 2000 (USDL) 1988	Building a Quality Workforce (USDL, USDE, USDC) 1988	America's Choice: High Skills or Low Wages (NCEE) 1990	America 2000 (USDE) 1991	Education Counts (NCES) 1991	America and the New Economy (ASTD & USDL)	Natl. Education Goals (Natl. Panel) 1991
Basic Skills	■	■	■	■	■	■	❍	■
Reading	❍	❍	❍			❍	❍	❍
Writing	❍	❍	❍			❍	❍	❍
Arithmetic/Math	❍	❍	❍			❍	❍	❍
Listening	❍		❍				❍	
Speaking	❍		❍				❍	
Thinking Skills	■		■			■	■	■
Creative Thinking	❍		❍				❍	
Decision Making			❍					
Problem Solving	❍		❍				❍	
Seeing Through Mind's Eye							■	
Knowing How to Learn	❍		❍			❍	❍	
Reasoning						❍		
Personal Qualities	■		■	■		■	■	
Responsibility	■							
Self-Esteem	❍						❍	
Sociability							❍	
Self-Management						■	❍	
Integrity/Honesty						❍		

■ = Implied in Discussion ❍ = Explicitly mentioned

The following related workforce system components and general terms are used within this report:

ASTD: American Society for Training and Development
NCEE: National Center on Education and the Economy
NCES: National Center for Educational Statistics
USDC: United States Department of Commerce
USDE: United States Department of Education
USDL: United States Department of Labor

SCANS: Competencies	Workplace Basics (ASTD & USDL) 1988	Workforce 2000 (USDL) 1988	Building a Quality Workforce (USDL, USDE, USDC) 1988	America's Choice: High Skills or Low Wages (NCEE) 1990	America 2000 (USDE) 1991	Education Counts (NCES) 1991	America and the New Economy (ASTD & USDL)	Natl. Education Goals (Natl. Panel) 1991
Resources						■		
Time								
Money								
Materials & Facilities								
Human Resources								
Interpersonal	■		■			■	☽	
Member of a team			■			☽	☽	☽
Teaches Others New Skills						☽		
Serves Clients								
Exercises Leadership	☽						☽	
Negotiates	☽						☽	
Works with diversity						☽	■	☽
Information								
Acquires/evaluates								
Organizes& Maintains							☽	
Interprets & Communicates								
Uses Computers to process info								
Systems	■						■	
Understands Systems						■		
Monitors/ Corrects Performance								
Improves or Designs systems								
Technology		■	■	■		■	■	
Selects technology								
Applies Tech. to task								
Maintains & Troubleshoots Equip.								

■ = Implied in Discussion ☽ = Explicitly mentioned

SCANS Foundation Skills and National Studies/Reports

Various combinations of the Foundation Basic Skills of the SCANS Report are either explicitly mentioned or implied in all eight of the reviewed studies. Of those basic skills, reading, writing and arithmetic/math were explicitly noted in six of the eight studies. Speaking and listening skills were referred to with less frequency, being documented in only three of the studies. As SCANS moves to thinking skills, the majority of the reviewed national studies made even less reference or demand for these types of skills. Thinking skills are implied in half of the studies, with explicit mention to thinking skills occurring in only three. Creative thinking, problem solving and knowing how to learn were skills most frequently desired by *Workplace Basics, Building A Quality Workforce, and America and the Economy*. The personal quality skills of SCANS were implied in discussion by five studies, however, explicit mention was only noted in three. Within those three studies, self-esteem, sociability, and self-management were specific personal quality skills consistently denoted. Overall, the national studies make regular reference to the basic skills as defined by SCANS (e.g., Reading, Writing, and Arithmetic/Math), however, explicit mention to the remaining foundational skills occurs with much less frequency. From this general observation, national workforce studies seemingly concentrate their skill identification on the traditional basic skills, and neglect somewhat the attention to "new basics", such as critical thinking and problem solving.

Of the eight national studies, *Workplace Basics, Building A Quality Workforce, and America and the Economy* appear to be the most complete in regard to the number of SCANS foundation skills included in each. This may be due to the governmental agency collaboration in sponsoring these studies. *Workplace Basics* and *America and the Economy* were both co-sponsored by the ASTD and the USDL. The USDE was also involved with these agencies in the writing of *Building a Quality Workforce*. However, the SCANS Report, which these studies were measured against, is published by the USDL.

Recommendations

Future national workforce studies should recognize both cognitive and affective domains of learners. As skills are identified that reflect the domains of learners, this activity would certainly contribute to a enriched curriculum. With the "whole learner concept" that is often espoused by education, business, and industry (e.g., worker/learner "interdependence" - America and the New Economy; "contextual learner" - SCANS Report) actually developed, the determination and availability of a consistent skill grouping may enhance a truer learner centered experience by providing educators a similar, integrated thread in national, state, and local curriculum. Regardless of the program, content, or school locality, the learner centered skills that embrace the diversity of all students can be a cornerstone for education to work curriculum.

SCANS Competencies and National Studies/Reports

The eight national studies clearly exclude the majority of SCANS Competencies. The five competency components, Resources, Interpersonal, Information, Systems, and Technology are viewed by SCANS as the enablers spanning the "chasm between school and the workplace" (SCANS Report, p. 15). It is evident from the matrix, that these "enablers" are either: 1) implied; 2) explicitly mentioned; or 3) infrequently or omitted altogether by the reviewed studies. This omission leads to questioning the intent of national workforce education in the area of general occupational skills. The five explicitly mentioned specific competencies were all Interpersonal competencies. The most frequently implied competency was that of Technology (found in five of the studies).

Workforce competencies (and skills) that regularly presented themselves in the reviewed national studies, but were only limitedly discussed or omitted altogether in the SCANS Report were: 1) the basic knowledge of work; 2) career development; 3) career awareness and mobility; and 4) citizenship.

Recommendations

SCANS emphasizes that competencies are "needed in workplaces dedicated to excellence, [and] they are the hallmarks of today's expert worker" (SCANS Report, p. 16). If productive workers must be able to use the five

competency components in order to be effective why are these type of competencies, on the most part, excluded from national workforce studies? Perhaps the focus of the reviewed studies is limited to only what is perceived as "basic skills"? The specificity of the SCANS competencies towards general occupational competence may illustrate the lack of knowledge and/or interest by national concerns to adequately include these within workforce related education and economic studies. If this is the case, perhaps committee membership involving skill/competency identification needs to be redesigned? If these competencies are not developed in some fashion, it may limit the development of curriculum standards by not adequately presenting general occupational skills, that in turn, contribute to content related standards in education for work (e.g., the current skill standards that are being developed nationally). A recommendation to alleviate this perceived limitation, would be the implementation of a consistent, validated skills identification process to adequately identify general occupational skills. A Structured Group Interview (SGI) could be employed when the SCANS Report is updated. The same process could also be used with other national reports when formulating various skill areas to be identified.

CONCLUSION

With the conclusion of this initial inquiry, consideration should be given to at least four basic questions: First, are the configurations of skills currently being deemed "essential" in the reports present any commonality that can be forwarded in policy, then to curriculum design, and ultimately, classroom implementation? Second, what do the reports posit for the education and training of the nation's future workforce in relation to the "whole" learner? Third, how are these reports likely to interface with current educational legislation such as *Goals 2000 - Educate America Act*, or the *School-to-Work Opportunities Act*? And finally, what are some of the possible implementation outcomes of having a common strand of validated skills as a basis of education for work curriculum?

In reviewing the skills that appear most consistently across the reviewed national reports, the traditional "basic skills" are most apparent. To secondary educators preparing the workforce of tomorrow, does this imply that a rigorous academic foundation of the "basics" is the focus to their efforts? Outwardly, perhaps so. Looking more closely at the content of some these reports, the "whole learner" is often pointed to, however, when the actual "essential" skills are denoted, the basic skills are those most highlighted. Thinking skills (e.g., creative thinking, decision making, reasoning, and knowing how to learn), personal quality skills, and general occupational competencies (i.e., the SCANS Competencies) are limited or omitted altogether in the majority of the studies. Other than the "basics", there is a very limited picture of skill commonality between the studies.

Comprehensively, basic skills in conjunction with thinking, personal quality, and general occupational skills may contribute to greater degree of "whole" student/worker learning and educational experience. Educational training of the workforce should reflect this notion. If a common strand of essential skills can be identified by education, business, and industry encompassing the "whole" student concept, related policy and curriculum design could be interfaced more directly than at present. By integrating those skills, resulting curriculum and instruction can then engage the learner/future worker meaningfully by combining general and specific skill content with activities focused on learner values, culture, discovery, thinking processes, and workplace experience (Laster, 1985).

Within the realm of current legislative initiatives, the *School-to-Work Opportunities Act of 1994* and *Goals 2000: Educate America Act* could have an overarching impact on the direction of these studies' content in the future. As national education and economic reform studies are revalidated in relation to their identified skills, and, if the direction is taken to identify a common strand of skills popular for both policy and curriculum design, then one needs to be cognizant of legislative intent.

The *School-to-Work Opportunities Act of 1994* denotes several subsections in which skills and/or competence are detailed for both in-school and workbased learning. First, in Section 102(3) of the School-Based Learning Component, it is the intent that students receive " a program of study designed to meet the same academic content standards the State has established for all students, including, where applicable, standards established under the Goals 2000: Educate America Act...". This is followed by 102(4) which states "a program of instruction and curriculum that integrates academic and vocational learning, and incorporates instruction, to the extent practicable, in all aspects of the industry...". Although these subsections primarily stress broad content and programmatic

considerations, it can be assumed that curriculum, instruction, and learning is linked to "academic content standards" (i.e., academic related skills) and "all aspects of the industry" (i.e., occupationally related skills). Section 103 becomes more specific in documenting skill related intent, by listing several subsections that highlight work-based learning components consisting of: 1) "...training related to preemployment and employment skills..."; 2) "...instruction of general workplace competencies, including instructional activities related to developing positive work attitudes, and employability and particpative skills"; and 3) "broad instruction, to the extent practicable, in all aspects of the industry".

Similarly, *Goals 2000: Educate America Act* "provides resources to states and communities to develop and implement comprehensive education reforms aimed at helping all students reach challenging academic and occupational standards" (USDE,1994, p. 3). As with the previously discussed piece of legislation, Goals 2000 has at least three specific goals devoted to skill related learning and concepts for: 1) Student Achievement and Citizenship; 2)Mathematics and Science; and 3) Adult Literacy and Lifelong Learning. In approaching these concepts, Goals 2000 highlights intent that focuses on: "all students learn[ing] to use their minds, so that they may be prepared for responsible citizenship, further learning, and productive employment..."; "[students] demonstrate the ability to reason, solve problems, apply knowledge, and write and communicate effectively"; strengthening "mathematics and science education"; "workers have[ing] the opportunity to acquire the knowledge and skills, from basic to highly technical, needed to adapt to emerging new technologies, work methods, and markets..." (Goals 2000: Educate America Act -- Fact Sheet, p. 9). Again, if these pieces of legislation influence policy and vice versa, perhaps a greater degree of thought should go to validating skills that encompass the stated intent. Those skills and area of competence documented in *Goals 2000* and *School-to-Work Opportunities Act of 1994* clearly demonstrate the need of student/worker learning to extend beyond the basic skills.

Finally, with a common strand of essential education for work skills identified, the actual implementation or integration of these skills into future curriculum can result in a broadened educational scope. Acting as a common thread, the core of skills when woven into the curriculum, enhance the reflection of a coalition of several theoretical components essential to education for work curriculum (Copa, 1992). Approaches such as technology, structure of disciplines, social reconstruction, and personal, and cognitive processes certainly can be enriched by established core skills which support their advancement in education and work environments. By emphasizing a core of skills in its content, the challenge for education for work curriculum is to provide instructional materials that will assist students in gaining competency for life and work, rather than simply becoming proficient at task performance or rote application of the "basics". In a recent policy publication, the RAND Institute reflects this thought by noting that a "[R]icher, better sequenced curricula that enhance academic and generic skills is needed by all workers" (p. 2) Content, teamed with appropriate instruction, needs to stress diverse skills that the student can apply in a variety of work and family contexts (Blinn and Pike, 1986). In support of this theory, the identification of a common set of diverse skills universally valued by education, business, and industry is the critical first step to achieving education for work curriculum that is accountable for a baseline of essential skills for all students, yet flexible in design to meet the uniqueness of an array of programs.

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Appendix A
SCANS: Workplace Know-How:
Foundation Skills and Workforce Competencies

SCANS Report skills are divided into two categories, Foundation Skills and Competencies. The following terms and definitions are designated within each category, and are sequentially presented to correspond with the matrix's format *:

Foundation Skills (Three Components)

I. Basic Skills:	Reads, writes, performs arithmetic and mathematical operations, listens and speaks.
Reading:	Locates, understands, and interprets written information in process and in documents such as manuals, graphs and schedules.
Writing:	Communicates thoughts, ideas, information, and messages in writing; and create documents such as letters, directions, manuals, reports, graphs, and flow charts.
Arithmetic/ Mathematics:	Performs basic computations and approaches practical problems by choosing appropriately from a variety of mathematical techniques.
Listening:	Receives, attends to, interprets, and responds to verbal messages and other cues.
Speaking:	Organizes ideas and communicates orally.
II. Thinking Skills:	Thinks creatively, makes decisions, solves problems, visualizes, knows how to learn, and reasons.
Creative Thinking:	Generates new ideas.
Decision Making:	Specifies goals and constraints, generates alternatives, considers risks, and evaluates and chooses best alternative.
Problem Solving:	Recognizes problems and devises and implements plan of action.
Seeing Things in the Mind's Eye:	Organizes and processes symbols, pictures, graphs, objects, and other information.

*Source: The SCANS Report, 1991, Pages B1-B2 and C1-C2.

Knowing How To Learn:	Uses efficient learning techniques to acquire and apply new knowledge and skills.
Reasoning:	Discovers a rule or principle underlying the relationship between two or more objects and applies it when solving a problem.
III. Personal Qualities:	Displays responsibility, self-esteem, sociability, self-management, integrity, and honesty.
Responsibility:	Exerts a high level of effort and perseveres towards goal attainment.
Self-Esteem:	Believes in own self-worth and maintains a positive view of self.
Sociability:	Demonstrates understanding, friendliness, adaptability, empathy, and politeness in group settings.
Self-Management:	Assesses self accurately, sets personal goals, monitors progress, and exhibits self-control.
Integrity/ Honesty:	Chooses ethical courses of action.

Competencies (Five Components)

I. Resources:	Identifies, organizes, plans and allocates resources.
Time:	Selects goal relevant activities, ranks them, allocates times, and prepares and follows schedules.
Money:	Uses or prepares budgets, makes forecasts, keep records, and makes adjustments to meet objectives.
Material and Facilities:	Acquires, stores, allocates, and uses materials or space efficiently.
Human Resources:	Assesses skills and distributes work accordingly, evaluates performance and provides feedback.
II. Interpersonal:	Works with others.
Participates as a Team Member:	Works cooperatively with others and contributes to group with ideas, suggestions and effort.
Teaches Others:	Helps others learn.

Serves Clients/ Customers: Works and communicates with clients/customers to satisfy their expectations.

Exercises leadership: Communicates thoughts, feelings, and ideas to justify a position, encourages, persuades, convinces, or otherwise motivates and individual or groups, including responsibly challenging existing procedures, policies, or authority.

Negotiates: Works towards an agreement that may involve exchanging specific resources or resolving divergent interests.

Works with Diversity: Works well with women and men, and with a variety of ethnic, social, or educational backgrounds.

III. Information: Acquires and uses information.

Acquires and Evaluates Information: Identifies need for data, obtains it from existing sources or creates it, and evaluates its relevance and accuracy.

Organizes and Maintains Information: Organizes, processes, and maintains written or computerized records and other forms of information in a systematic fashion.

Interprets and Communicates Information: Selects and analyzes information and communicates the results to others using oral, written, graphic, pictorial, or multi-media methods.

Uses Computers to Process Information: Employs computers to acquire, organize, analyze, and communicate information.

IV. Systems: Understands complex inter-relationships.

Understands Systems: Knows how social, organizational, and technical systems work and operates effectively within them.

Monitors and Corrects Performance: Distinguishes trends, predicts impact of actions on system operations, diagnoses deviations in the function of a system/organization, and takes necessary action to correct performance.

Improves and Designs Systems: Makes suggestions to modify existing systems to improve products or services, and develops new or alternative systems.

V. Technology:	Works with a variety of technologies.
Selects Technology:	Judges which set of procedures, tools, or machines, including computers and their programs, will produce the desired results.
Applies Technology to Task:	Understands the overall intent and the proper procedures for setting up and operating machines, including computers and their programming systems.
Maintains and Troubleshoots:	Prevents, identifies, or solves problems in machines, computers and other technologies.